



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,928	06/27/2003	Makoto Ochi	030777	3870

23850 7590 12/19/2005

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP  
1725 K STREET, NW  
SUITE 1000  
WASHINGTON, DC 20006

EXAMINER

RHEE, JANE J

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/606,928	<b>Applicant(s)</b> OCHI ET AL.	
	<b>Examiner</b> Jane Rhee	<b>Art Unit</b> 1745	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/27/2003</u> . | 6) <input type="checkbox"/> Other: ____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 5 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant claims that the amount of species of a compound is that is disposed in the inner parts of the electrode group is greater than that for each of the cathodes disposed on the outer sides of the electrode group. It is unclear whether the inner parts of the electrode group is core area of the battery or the innermost layer which can also be seen as an outer layer because it can be seen as two outer layer or one outer layer and one innermost layer or whether its in a spiral formation and the inner parts are the inner area of the spiral area.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Maeda et al. (6338917).

As to claim 1, Maeda et al. discloses an alkaline storage battery comprising nickel cathodes (col.2 line 66) and an alkaline electrolytic solution (col. 2 line 66) wherein at least one species of a compound selected from niobium compound and titanium compound (col. 3 line 21-22) is introduced into the nickel cathodes comprising a cathode active material composed mainly of nickel hydroxide (col. 3 line 25-29), which surface has a coating layer of a cobalt compound, and alkaline electrolytic solution contains lithium hydroxide, a lithium hydroxide content being 1.376mol/L (col. 4 line 21,  $1\text{mol}/23.095\text{g} [\text{mw of LiOH}] \times 40\text{g/L} = 1.36\text{mol/L}$ ).

As to claim 2, Maeda et al. discloses that the cobalt compound is a cobalt compound containing alkaline cations (col. 3 line 10-12). As to claim 3, Maeda et al. discloses wherein the amount of niobium compound or titanium compound to be added is 0.1-3% by mass in relation to the mass of cathode active material composed mainly of nickel hydroxide, having the coating layer of the cobalt compound (col. 3 lines 27).

As to claim 4, Maeda et al. discloses that the alkaline electrolytic solution contains sodium hydroxide (col. 3 line 42).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bando et al. in view of Maeda et al. (6338917).

As to claim 5 and 9, Bando et al. discloses an alkaline storage battery incorporating an electrode group comprising nickel cathodes and anodes (col. 2 lines 45-54), disposed in such a way as to oppose each other with a separator interposed therebetween (col. 7 line 57), wherein the nickel cathodes each include a cathode active material composed mainly of nickel hydroxide, having a coating layer of a cobalt compound (col. 2 lines 50-55) and wherein the alkaline electrolytic solution contains lithium hydroxide of 0.5 to 1.5M (col. 21 line 1).

As to the species of a compound selected from the group consisting of niobium compound, titanium compound, tungsten compound and molybdenum compounds to be added to the coating layer of cobalt compound, Maeda et al. teaches the addition of titanium or niobium to the cobalt compound for the purpose of increasing the oxygen overvoltage that is contained inside the electrically conductive material (col. 3 lines 17-19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide Bando et al. with the addition of titanium or niobium to the cobalt compound in order to increase the oxygen overvoltage that is contained inside the electrically conductive material (col. 3 lines 17-19) which would consequently improve battery performances.

As to claims 6 and 10 wherein the species of compound discussed above for each of the nickel cathodes that are disposed in inner parts of the electrode group are greater than that for each of the nickel cathodes disposed on the outer sides of the electrode group, Bando et al. teaches a dense covering of the cobalt compound on the

surfaces of the particles consisting mainly of nickel hydroxide for the purpose of preventing the occurrence of the portion in the positive electrode where the degree of deterioration of conductivity is extremely prominent as compared other portions that might be resulted when the battery is stored under a high temperature environment or for a long period of time (col. 27 lines 20-28).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide the titanium or niobium to the cobalt compound for the purpose of increasing the oxygen overvoltage that is contained inside the electrically conductive material (col. 3 lines 17-19) and further dispose the species in inner parts of the electrode group are greater than that for each of the nickel cathodes disposed on the outer sides of the electrode group in order to prevent the occurrence of the portion in the positive electrode where the degree of deterioration of conductivity is extremely prominent as compared other portions that might be resulted when the battery is stored under a high temperature environment or for a long period of time (col. 27 lines 20-28).

As to claims 7 and 11, Bando et al. discloses that the cobalt compound coating the nickel is a cobalt compound containing alkaline cations (col. 7 lines 1-3).

As to claims 8 and 12, Maeda et al. discloses wherein the amount of niobium compound or titanium compound to be added is 0.1-3% by mass in relation to the mass of cathode active material composed mainly of nickel hydroxide, having the coating layer of the cobalt compound (col. 3 lines 27) for the purpose of increasing the oxygen

overvoltage that is contained inside the electrically conductive material (col. 3 lines 17-19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide Bando et al. with the addition of titanium or niobium to the cobalt compound in the amount of 0.1-3% by mass in relation to the mass of cathode active material composed mainly of nickel hydroxide, having the coating layer of the cobalt compound in order to increase the oxygen overvoltage that is contained inside the electrically conductive material (col. 3 lines 17-19) which would consequently improve battery performances.

As to claim 13, Bando et al. discloses that the alkaline electrolytic solution contains sodium hydroxide (col. 20 line 62).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jane Rhee whose telephone number is 571-272-1499. The examiner can normally be reached on M-F 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jane Rhee  
December 6, 2005



PATRICK JOSEPH RYAN  
SUPERVISORY PATENT EXAMINER